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ENTOMOLOGY.¹

Lycænid larva on *Atriplex*.—On July 6, 1892, I beat several small lycænid larvæ from *Atriplex canescens*, 12 miles north of Cedar Ranch, Arizona, on the stage road from Flagstaff to the Grand Cañon. The larvæ were of almost the same shade of color as the bush and leaves, of a very light whitish-green, thus easily escaping detection. If I am not mistaken they fed on the underside of the leaves.

Description of larva.—Length (in strongly curved position), 5 mm.; width, $2\frac{1}{2}$ mm. Thirteen jointed, strongly curved (after immersion in alcohol), arched, broad, somewhat flattened, tapering to head, more rounded posteriorly. In color pale whitish-green, head shining jet black; a median dorsal, and two lateral rows (one on each side) of reddish spots, one spot to each segment, on segments 3 to 10; those on anterior segments much fainter usually, especially the lateral ones. Often a faint row of smaller spots ventrad of the lateral row. Head very small compared with other segments, hardly more than one-third the width of the prothoracic segment, within which it is usually retracted; sub-hemispherical in shape, convex dorsally, glabrous, well polished and shining. All the other segments thickly covered with minute short white spine-like tubercles, with a less number of similar black ones interspersed. These extend on the ventral portion, which is besides clothed with some short whitish hairs along sides and on prolegs. The anterior portion of dorsum of prothoracic segment is furnished with more numerous and larger short and stout black spines. Prothoracic segment subtriangular in outline from above, a little rounded in front, widening behind; segments 3 to 6 widening posteriorly, each wider than its predecessor; segments 7 to 10 about equal in width, a little wider than 6; 11 and 12 gradually narrowing from 10; 13 considerably narrower than 12 (in some specimens regularly narrowing from 12), rounded posteriorly, with a terminal somewhat narrower and partially free joint which bears the terminal or anal pair of prolegs. Segments 3 to 8 each gathered into a transverse, slightly curved, more or less hump-like ridge on dorsum, the prothoracic segment with a strongly anteriorly bent one, segments 9 to 11 hardly humped, segments 5 to 8 usually most strongly so. Eyes represented by five small glassy simple eyes, four of them arranged in a semicircle with the outside antero-dorsad, the fifth postero-ventrad of the four. Mandibles minute,

¹Edited by Prof. Clarence M. Weed, New Hampshire College, Durham, N. H.

7-toothed (6-notched) on the very broadened and circular apical margin, brownish. Other trophi light colored. Spiracles somewhat raised, situated on side posteriorly of prothoracic segment, and on sides of segments 5 to 12, those on 11 and 12 situated higher up on dorsum and more removed from the lateral margin. Three pairs of short hook-like true or thoracic legs; and five pairs of fleshy prolegs, on segments 7 to 10 and terminal joint of 13.

Note.—The segment which is called a terminal joint of segment 13 may perhaps be regarded as the thirteenth segment. In this case the slightly hood-like or flap-like portion which projects over it from the twelfth segment would necessarily be regarded as a posterior development of that segment.

Described from 3 specimens. Color noted in life. Arizona. The special organs described by Mr. W. H. Edwards, in his second volume of the Butterflies of North America, as found on segments 11 and 12 of the larva of *Lycena pseudargiolus*, are also present in the above larvæ on *Atriplex*. The median transverse opening on 11 is very plain, but the two retracted tubes on 12 do not show as plainly as figured by Mr. Edwards. These latter show very much more plainly in lycænid larvæ which I have taken in southern New Mexico on mesquite in May.

—C. H. TYLER TOWNSEND.

Honey Adulterations.—There has been in the past much difference of opinion among chemists and beekeepers concerning the detection of honey adulterations by chemical methods. To obtain more definite information on the subject Professor A. J. Cook recently had samples of a large number of kinds of honey analyzed by Professor H. W. Wiley of the U. S. Department of Agriculture, Professor R. C. Kedzie of the Michigan Agricultural College, and Professor M. A. Scovell of the Kentucky Agricultural Experiment Station. The results of these analyses are published in Bulletin 96 of the Michigan Station, and from them Professor Cook draws these conclusions:

1. That chemists can easily detect adulteration of honey by use of glucose, in all cases where it is likely to be practiced. The same would be true if cane sugar syrup were mixed with the honey.
2. That a probable method to distinguish honey dew honey from honey adulterated with glucose has been determined by these analyses. The right-handed or slight left-handed rotation together with the large amount of ash, and small amount of invert sugar indicate honey dew honey. As honey dew honey will never be put onto the market, this question is of scientific rather than practical importance.

3. As yet the chemist is unable to distinguish between cane sugar syrup honey—by which we mean cane sugar syrup fed to the bees and^r transformed by them into honey, and not cane syrup mixed with honey, which is adulteration pure and simple, though a kind not likely to be practiced—and honey from flowers. As the best cultivated taste cannot thus distinguish, this seems of slight importance. If it should prove to be important to be able to distinguish them it is probable that the chemist will discover the means, as chemistry has very delicate eyes, and can usually search out very slight differences.

North American Noctuidæ.—Professor Smith has furnished a striking example of his industry as a student of the Noctuidæ in his recent catalogue² covering 424 pages, which are nearly all devoted to the catalogue proper. The preface consists of a statement of the collections in America and Europe examined by the author, with explanations of the methods adopted in preparing the catalogue. This is followed by an index of authors and works cited, and the bulletin closes with a very complete index in which every name used in the body of the bulletin is included. This index covers 25 double-column pages in small type which will give some idea of the extent of the family and the completeness of the catalogue.

Recent Bulletins.—The entomologists of the experiment stations continue active in issuing publications concerning injurious insects. The subjects chosen cover a wide range, and while much of the matter consists of a republication of existing information—a legitimate function of the stations—a good deal of original knowledge is being brought out. In Bulletin, 32 of the West Virginia Station, Mr. A. D. Hopkins presents a catalogue of the Forest and Shade tree insects of that State. The list includes 494 species, only a part of them, however, being injurious, the others being parasitic or predaceous, or living under the bark of fallen logs. Mr. Hopkins has paid special attention to the Scalytidæ and is accomplishing valuable results in their study.

In Bulletin No. 24 of the Colorado Station Professor C. P. Gillette treats of "A few Common Insect Pests." The species discussed are enemies of cabbages, onions and other garden crops. A Thrips, doubtfully identified as *T. striatus* Osborn is reported to do serious injury to onions.

² A catalogue, bibliographical and synonymical, of the species of moths of the Lepidopterous superfamily Noctuidæ found in Boreal America. With critical notes, by John B. Smith, Sc. D., Bull. U. S. Nat. Museum, No. 44.

In Bulletin 98 of the Michigan Station Mr. G. C. Davis briefly discusses locusts (*Acrididæ*) and the Horn Fly (*Hæmatobia serrata*), while in Bulletin 96 of the same Station Professor A. J. Cook discusses Honey Analyses.

Professor J. B. Smith has recently sent out two bulletins from New Jersey. In No. 95 he announces that Brood XII of the Periodical Cicada is due in New Jersey next year, and is likely to appear all over the state, though more abundantly in the northern and eastern counties. He suggests that no pruning or budding be done this fall or next spring, leaving abundance of surface for oviposition. This is an excellent example of the value of entomological prognostication.

Bulletin 94 discusses "Insects injurious to Cucurbs" in a practical way that is sure to be appreciated by New Jersey farmers.